

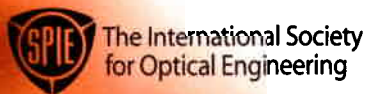
# OpticsEast

An **SPIE** Event

*Photonics for Applications in Industry, Life Sciences, and Communications*

1-4 October 2006 Boston Marriott Copley Place • Boston, Massachusetts USA

Conferences • Courses • Exhibition



## Sensors and Industry Applications

- Chemical and Biological Sensing and Standoff Detection
- Environmental
- Water Quality
- Food and Agriculture
- Manufacturing
- Automotive and Transportation
- Harsh Environments
- And MORE

## Life Science Applications

- Lab-on-a-Chip
- Photonics in Drug Discovery
- Smart Medical and Biological Sensors
- IR (mid to nir) and Thz for Health and the Environment

## Communications/ITCom

- Active and Passive Components
- Optical Transmission Equipment
- Broadband, Next Generation, and Sensors Networks
- Interned and Multimedia systems
- 3D TV, Video, and Displays

## Plus

highlighted technologies:

- Optoelectronics
- Photonic Crystals
- Nanotechnology
- Fiber Optics
- Advanced Photon Counting Techniques
- Optomechatronics

Hear the latest research • Network with your peers • Shape the future

## Broadband Access Communication Technologies (IT404)

**Conference Chairs:** **Raj Jain**, Washington Univ. in St. Louis; **Benjamin B. Dingel**, Nasfinc Photonics, Inc.; **Shozo Komaki**, Osaka Univ. (Japan); **Shlomo Ovardia**, Intel Corp.

**Program Committee:** **Arjan Durreli**, Louisiana State Univ.; **David W. Faulkner**, British Telecom Research Labs. (United Kingdom); **Mahbub Hassan**, Univ. of New South Wales (Australia); **Mohsen Kavehrad**, The Pennsylvania State Univ.; **Rangaraj Madabhushi**, Madabhushi Consultants, LLC and Covega Corp.; **Dalma Novak**, The Univ. of Melbourne (Australia); **Jean-Charles Point**, JCP-Consult (France); **Ken-ichi Sato**, Nagoya Univ. (Japan); **Katsutoshi Tukamoto**, Osaka Univ. (Japan); **Peter Van Daele**, Univ. Gent (Belgium); **Jeroen S. Wellen**, Lucent Technologies (Netherlands)

### **Preliminary list of confirmed invited speakers:**

- Victor Bahl (Microsoft, Keynote Speaker) on Topic: TBD
- Peter Van Daele (IMEC-Ghent University, Belgium) on BREAD: EU Coordination Action for Broadband for All
- Koji Yasukawa (Osaka Institute of Technology, Japan) on Broadband Access Project (SCOPE) supported by Government
- Jose Puthenkulam (Intel) on Mobile WiMAX (802.16e)
- Mohseh Kavehrad (Pennsylvania State Univ.) on Fractal Transmission in Hybrid RF and Wireless Optical Links
- Mung Chiang (Princeton Univ.) on FAST Copper for Broadband Access

### **Special Joint-Session with Optical Transmission Systems & Equipment for WDM Networking V(IT402):**

- Preliminary list of confirmed invited speakers
- Vincent Chan (MIT) on Future Integrated Broadband Fiber, Wireless and Satellite
  - Junichi Kani (NTT Access Network Service Systems Lab., Japan) on Recent Advances in Optical Access Technologies

### **Preliminary list of technical tutorial speaker(s):**

- Raj Jain (Washington Univ. in St. Louis) on Hot Issues in Wireless Broadband
- Speaker (TBD) on Network Security in Broadband Access

*Proceedings of this conference will be available at the meeting.*

**On-Site Manuscript Due Date: 10 July 2006**

In order to satisfy the growing demand of end-customers for fast Internet access, new multimedia services, and rapid interactive applications, all telecommunications networks (switched telephony, data transmission, cable television, and power line, wireless networks) operators are under intense pressure to solve the "last-mile connection" problem. This problem is not only the need for (1) huge broadband in one direction but also for (2) high

speed two-way connectivity, and (3) mobile access as opposed to traditional fixed access.

Major existing access technologies based on copper (xDSL), cable modem (CATV), and satellites (SAT) are rapidly evolving to partially answer these needs. New emerging access technologies such as fiber (FTTH), power line transport (PL), wireless (WLL), and Radio-over-Fiber (RoF) are increasingly being researched, developed and deployed since they offer huge broadband potential and mobility. This conference addresses (but not limited) to following topics:

### **Copper-, Cable-, and Powerline-based Broadband Access Technologies**

- DSL and its hybrids (xDSL, aDSL, vDSL, DSLAM, etc)
  - DSL components, equipment in support of Mbps rate
  - network architectures & scalability
- CATV technologies and networks
  - advanced components, equipment, architectures for multiple access, HFC network, transmission transport
  - optical WDM transmission issues and performances
  - multi-channel video systems, alternatives modulation, Optical SCM systems and performance;
- Powerline access technologies
  - performance, operational and economic issues
  - noise, EMC, and security issues
- IP network, VOIP, IPTV
  - operational, standards, and economic issues
  - triple play services and deployments .

### **Optical Broadband Access Technologies**

- Fiber-in-the-Loop (FITL), FTTP, FTTH, FTTC, HFC, etc.
  - advanced components, optical fiber and equipment,
  - next Gen PON (WDM-, CWDM-PON technologies)
  - techno-economic analysis, trials, and test-beds
  - emerging bandwidth allocation / sharing schemes
- Passive Optical Network (PON)-based Access technologies and deployments (EPON, GPON, SuperPON, etc),
  - advanced devices, optical fiber and equipment for PON
  - improved optical technologies: filters, switching, transmission and multiplexing,
  - WLAN, others architectures for broadband distribution
  - network design and optimization
  - monitoring, management & control
  - techno-economic analysis, Security in PON networks,
- 1G/10G Ethernet-based networks, Ethernet over First Mile.

### **Radio-over-Fiber (RoF) Broadband Access Technologies**

- RoF-based Access technologies and wireless networks
  - advanced opto-electronics devices, components, optical fiber and equipment for RoF-based Access, noise issues
  - RF transmission in optical fiber, dispersion, Optical links
  - Optical wireless and hybrid communication systems and network (indoor/outdoor wireless architectures)
  - backbone network architectures and networking
  - techno-economic analysis and market studies.

### **Wireless Broadband Access Technologies**

- Wireless Access technologies, components, and protocols
  - Emerging and advanced components to support Wi-Fi, UWB, Bluetooth
  - Peer-to-peer and mesh networking technologies
  - Fixed and mobile WiMAX (802.16e) access technologies
  - MIMO technologies for high-speed mobile users
  - WLAN security issues, emerging protocols & standards
  - High-speed WLAN (11n) technologies & components for mobile communication.

### **Satellite & Alternative Broadband Access Technologies**

- Broadband satellite last-mile access solutions
  - advanced microwave components, and equipment
  - microwave antenna for mobile communication, etc.
  - performance, availability, reliability issues
  - next Gen test-beds demonstration
- 2-way connectivity and broadcast satellite services
  - deployment, test-beds
- Free-space optics based systems, hybrid free-space & RF
  - service control platforms and interfaces.

### **Network Security in Broadband Access Networks**

- Security issues, sensing networks, monitoring technologies,
  - standards, protocols, control and performance.